**carmanah®**
MX Series

READ BEFORE COMMISSIONING CHEVRON SYSTEM

To fully commission your chevron equipped MX system, **the MX Field App is required**.

The MX Field App wirelessly communicates with MX systems for programming, configuration and diagnostics. It utilizes the Bluetooth connection between your mobile device and the MX system. Once you download the app, a cellular or Wi-Fi connection to the internet is required to create and sign into your Profile.

The MX Field App allows for system programming, scheduling, firmware updates and diagnostics from the ground without having to manually access the system.

The MX Field App is available free of charge on the Apple App Store and Google Play Store for compatible mobile devices. For more information see carmanah.com/app. Ensure you are running the latest version of the app before starting the commissioning.

Download on the **App Store**

GET IT ON **Google Play**
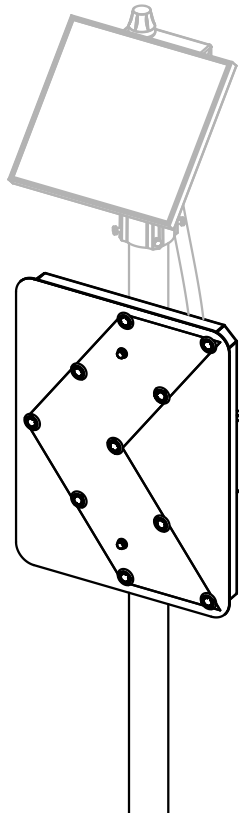
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1.1 Chevron Overview

For chevron warning sign applications, follow commissioning steps outlined in this document. Once you have completed a site survey, proceed with setup based on your application and requirements.
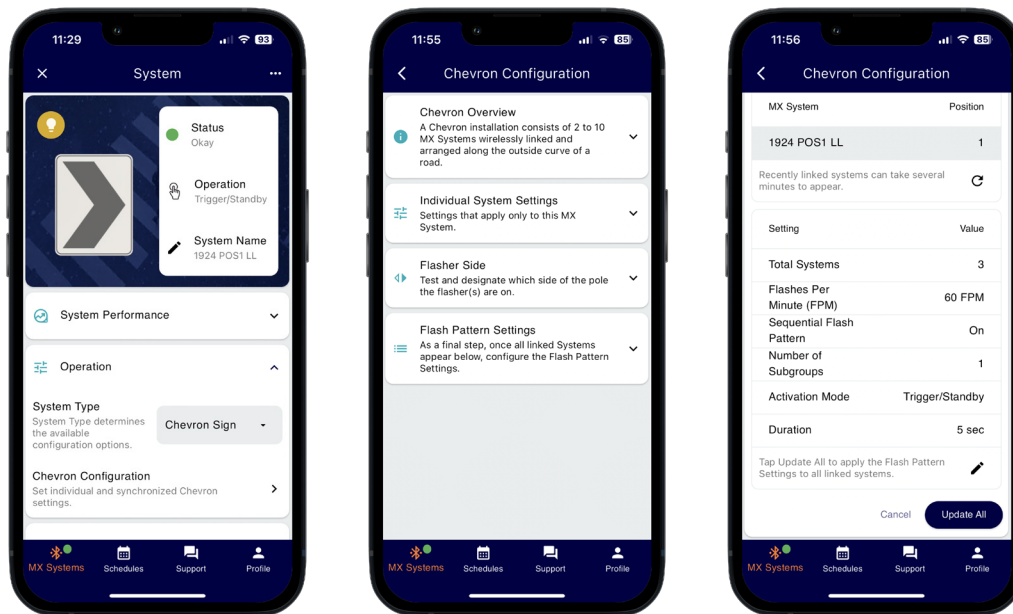

NOTE Chevron warning signs will flash continuously by default using the Always On operating mode.

General Installation Notes

- Installation can be unidirectional or bidirectional.
- Maximum of ten chevron systems in total can be linked with each other.
- Line of site from one power module to next adjacent system is required for proper wireless communication.
- Flasher module maximum distance is 75' away hardwired to its power module.
- Site survey ([Section 1.3](#)) should be completed for each installation.
- Chevron systems are identified from left to right when performing site survey.
- Left Leader = first position (system) from the left.
- Right Leader = last position (system) from the left.
- During initial setup ([Section 1.4](#)), systems should be renamed for easy identification.
- Flasher side is identified as you approach the system:
  - Left = vehicles approach chevron sign on left or installed on left side of pole.
  - N/A = systems not using the sequential flash pattern.
  - Right = vehicles approach chevron sign on right or installed on right side of pole.
- Radar, if equipped, must be installed on Left Leader and/or Right Leader only.
- Sequential flashing can be split into "subgroups," typically used for large curves containing six or more chevron systems.

1.2   Typical Site Layout

Refer to MX Chevron Overview below for a typical site layout. Orient site as shown from left to right as viewed from across the street.
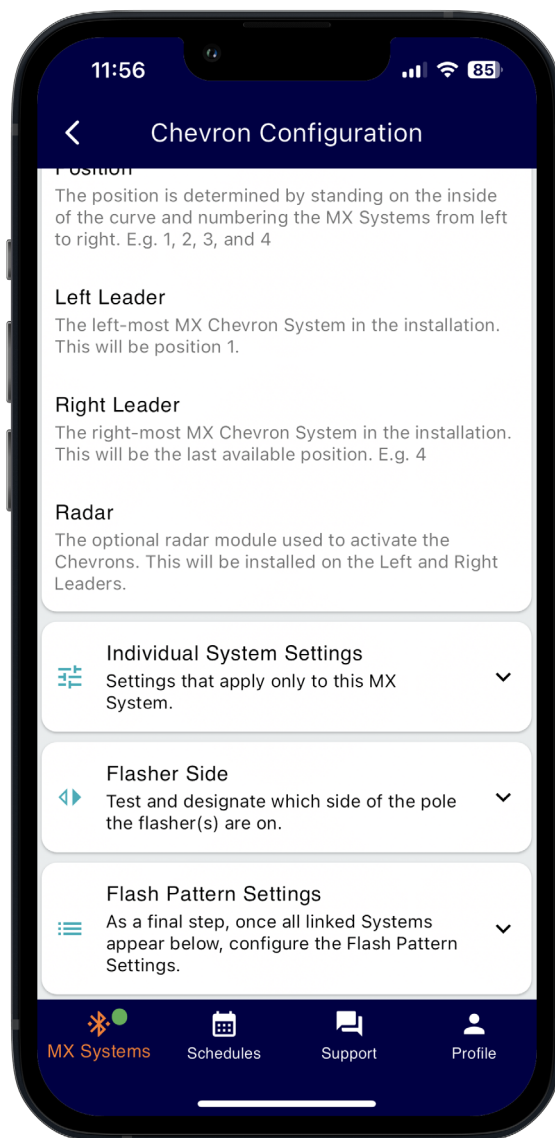
1.3 Site Survey

Fill in table below for each system on site.

- Recommended new system name = XXXX YYYY ZZ
  - ○ XXXX = last four digits of system serial number
  - ○ YYYY = Position # (POS1)
 - ○ ZZ = Left Leader (LL) or Right Leader (RL); if applicable

Position (POS)	Default System Name	New System Name	Left Side Chevron S/N	Right Side Chevron S/N	Radar Equipped?
EXAMPLE	MX123456789	6789 POS1 LL	2401234567	2401234568	Yes
EXAMPLE	MX123456790	6790 POS2	2401234569	2401234570	No
EXAMPLE	MX123456791	6791 POS3 RL	2401234571	2401234572	No
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

NOTE	Table will be filled in as part of the setup in Section 1.4.

1.4   Initial Setup

1. Connect to system designated as POS1 (Left Leader).

    a. Use "Identify System" button in upper left (💡) to confirm you are connected to the correct system.

    b. Rename system as per recommendations in Section 1.3.

    c. Change Operation Mode to Trigger/Standby.

    d. Change System Type to Chevron Sign.

    e. Tap on Link Settings and then vertical ellipsis (⋮).

    f. Tap on Custom Link and then Apply Link Settings.

2. Repeat step 1 for all remaining systems. Once reaching step 1e for each system, tap on Paste Link and then choose Copied Settings from system POS1. Once complete, systems should:

    a. Be named accordingly.

    b. Be set to same Operation Mode and System Type.

    c. Be linked together.

3. Proceed to Section 1.5.
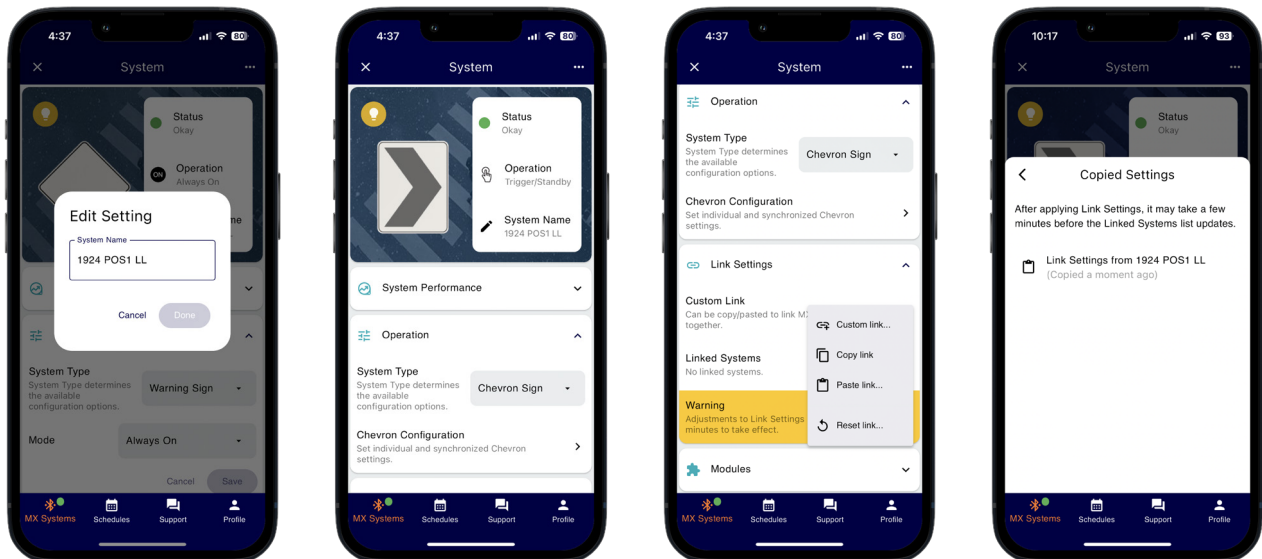
| NOTE | Chevron systems can be programmed for 24-hour flashing, dusk-to-dawn flashing, or radar triggered. Only Left Leader and/or Right Leader can be radar equipped. |

| NOTE | If radar equipped, systems will flash as vehicles are detected while completing setup. |

1.5   Configuration

1. Connect to POS1 system.
2. Open Chevron Configuration menu.
3. Tap on Individual System Settings and set each parameter based on your installation.
   a. Set Radar to N/A if system is not radar equipped.
   b. Tap Save to complete.
4. Tap on Flasher Side and set chevron sign configuration.
   a. If you are unsure which flasher is which, use the "Test" button to confirm.
   b. Set flasher side accordingly. Choose N/A for systems not using sequential flash pattern.
   c. Tap Save to complete.
5. Connect to each remaining system and repeat steps 1 – 4.
   a. Last system in sequence should be assigned as Right Leader if radar is equipped.
6. While still connected to last system in sequence, tap on Flash Pattern Settings.
   a. All linked systems and positions should be listed accordingly. Confirm this is accurate based on site survey and setup.
   b. Tap on "edit" button (✏).
   c. Adjust each setting based on your application.
      i. Section 1.6 – Synchronized Flashing
      ii. Section 1.7 – Sequential Flashing
7. Tap Done and then Update All to complete.

Individual System Settings

Parameter	Description	Setting(s)	Notes
Radar	Denotes if Left Leader or Right Leader is equipped with a radar.	Not Applicable Left Leader Right Leader	Refer to site survey. Set to Not Applicable if system is not radar equipped.
Position	Position of system, from left to right, within the sequence.	1 – 10	Refer to site survey.

Flasher Side

Parameter	Description	Setting(s)	Notes
Flasher side	Side of the pole the flasher is mounted on.	Left N/A Right	Choose N/A for systems not using sequential flash pattern.

NOTE A warning will be displayed after tapping Update All if the system you are connected to is not linked to the value entered for Total Systems. Ensure you have linked to all systems properly.

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1.6   Synchronized Flashing

Flash Pattern Settings

Parameter	Description	Setting(s)	Notes
Total Systems	Number of systems intended to be linked together.	1 – 10 systems	
Flashes Per Minute (FPM)	Number of flashes each system will complete per minute.	30 – 120 FPM	MUTCD standard is 50 – 60 FPM.
Sequential Flash Pattern	Not applicable for synchronized flashing.	OFF	Turn off for synchronized flashing.
Number of Subgroups	Not applicable for synchronized flashing.	N/A	
Flash ON Time	Duration of "on time" for a single chevron sign.	100 – 749 ms	Requires sequential flash pattern turned off.
Activation Mode	Mode for how chevron signs are activated.	Always On Trigger/Standby Dusk-to-Dawn	Typically set to Trigger/Standby for radar equipped applications.
Duration	Duration of a triggered activation.	5 – 3600 s	Requires Operating Mode to be set to Trigger/Standby.

NOTE   Once complete, synchronization may take a few minutes. Any future changes to these settings can be made while connected to any linked system. If systems do not synchronize, tap on the Update All button again and wait for changes to take effect.

NOTE   Settings above result in all linked chevron systems synchronized with each other.
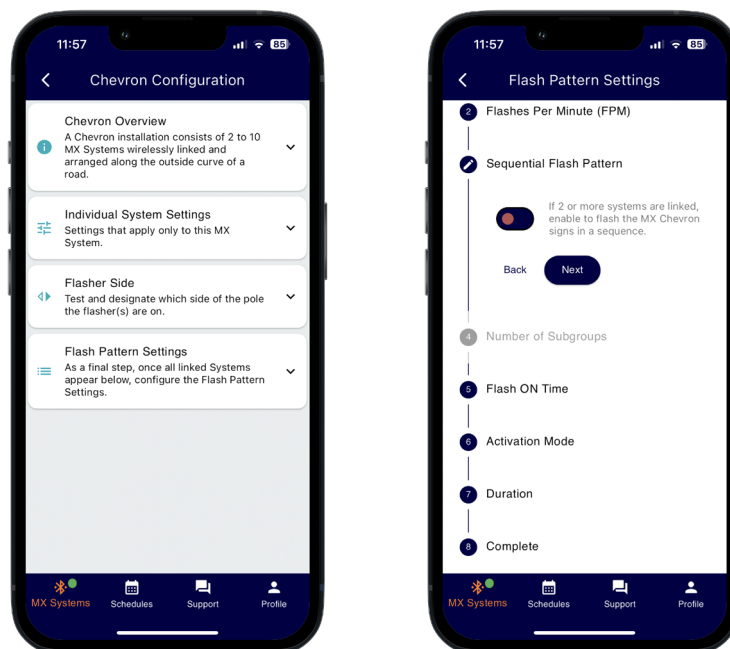
1.7 Sequential Flashing

Flash Pattern Settings

Parameter	Description	Setting(s)	Notes
Total Systems	Number of systems intended to be linked together.	1 – 10 systems	
Flashes Per Minute (FPM)	Number of flashes each system will complete per minute.	30 – 120 FPM	MUTCD standard is 50 – 60 FPM.
Sequential Flash Pattern	Unique flash pattern which starts from the Left/Right Leader and runs in sequence to the last system.	ON/OFF	Requires two or more systems.
Number of Subgroups	Number of chevron signs that will flash together in the same sub-sequence.	1 – 5	Requires sequential flash pattern turned on and a minimum even number of systems. This feature is typically only reserved for large curves with significant spacing between each system. Set to 1 if you do not want any subgroups.
Flash ON Time	Not applicable for sequential flashing	N/A	Flash ON time is automatically calculated based on FPM setting.
Activation Mode	Mode for how chevron signs are activated.	Always On Trigger/Standby Dusk-to-Dawn	Typically set to Trigger/Standby for radar equipped applications.
Duration	Duration of a triggered activation.	5 – 3600 s	Requires Operating Mode to be set to Trigger/Standby.

NOTE Once complete, synchronization may take a few minutes. Any future changes to these settings can be made while connected to any linked system. If systems do not synchronize, tap on the Update All button again and wait for changes to take effect.

NOTE Settings above result in all linked chevron systems flashing in sequence from triggered system (Left/Right leader) to the last system.